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ABSTRACT

With reference to the literature on adult self-directed learning, a model termed the "Two-Shell Model of Motivated Self-Directed Learning" was formulated that differentiates sociohistorical environmental conditions, internal conditions, and activities related to four concepts (interest, learning strategies, control, and evaluation). The following hypothesis guided the study: interest in self-directed learning, selection of learning strategies, control of the application of those strategies, and evaluation of the results of self-directed learning are related to individual experience of autonomy, competence, and social integration. The hypothesis was tested through a survey of 194 employees of a German medical insurance company and 67 employees in the fish processing industry. It was concluded after an analysis of the responses that self-directed learning may be viewed as a dynamic interplay between interests, motivations, strategies, control, and evaluation and that self-directed learning is related to environmental conditions experienced. It was stated that self-directed learning must be differentiated and that self-directed learning is heavily influenced by perceived environmental conditions. It was recommended that companies adopt made-to-measure personnel and organizational development policies and practices in the 21st century. (Contains 28 references) (MN)

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Self-Directed Learning in the Process of Work: Conceptual Considerations - Empirical Evidences

Abstract

Based on the "Two-Shell Model of Motivated Self-Directed Learning" (Straka, 1996; Nenniger, 1996) a survey was conducted with 194 employees of a German medical insurance company and 67 employees in the fish processing industry. The relations between seleceted environmental conditions like experienced "autonomy", "competence and "social integration" (Deci & Ryan 1985) „self-learning interest" as one motivational component of self-directed learning and learning strategies are investigated. LISREL analyses show - according to the central hypothesis derived form the "Two-Shell Model" - distinct paths between the experienced environmental conditions, interest in self-learning and learning strategies. The results confirm that the concept of self-directed learning has to be differentiated. Furthermore self-direceted learning seems to be heavily influenced by perceived environmental conditions, which may be a basis for recommending made-to-measure personnel and organizational development in the twenty-first century.

Introduction

„Learning" is currently experiencing a boom:

- in the theory and practice of personal and organizational development, the topic "learning organization" (Senge, 1990) is drawing a lot of attention,
- the European Union declared 1996 "the year of life-long learning",
- and also in 1996, the United Kingdom initiated a large research programme with the title "Learning Society".

In this context, self-directed learning constitutes a central - if not the central - topic. This form of learning appears to have started out on a journey around the world as the following conferences indicate:

- „The First Asian-Pacific Seminar on Self-Directed Learning" in July 1995 in Seoul,
- „The Third European Colloquium on 'Autoformation'„ in November 1996 in Bordeaux,
- „The Eleventh International Symposium on Self-Directed Learning" in March of this year in the U.S.A., and last not least this
- „First World Conference on Self-Directed Learning" in Montreal.

Even though self-directed learning is apparently discussed world-wide, this does not necessarily mean that underlying this discussion there is a common understanding of self-directed learning. One indicator for this being the large number of terms for this phenomenon:

- Philippe Carré (1994), for example, found well over twenty different terms for self-directed learning,

- Roger Hiemstra (1996) analysed the conference proceedings previous to the tenth International Symposium on Self-Directed Learning and found over 200 terms,

- at the second „Forum for Vocational Training Research" in September 1995 in Berlin, a participant at the "Self-Directed Learning" workshop over two days summed up that he still remained confused, but now at a higher level (Straka, 1996a).

What is, therefore, self-directed learning? How is it to be described? Knowles, who together with Tough made important contributions to this form of self-education gaining the attention it deserved in the theory and practice of adult education in the USA, defines self-directed learning as follows:

> „In its broadest meaning, 'self-directed learning' describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, indentifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (Knowles, 1975, 18).

However, this is not followed up by more extensive theoretical derivation or systematic description of what 'initiative' means and which activities from establishing the need to learn up to evaluating the learning outcomes may take place (Straka & Nenniger, 1995). Methodological evaluations of the Self-Directed Readiness Scale (Guglielmino, 1977) as well as the Oddi Continuing Learning Inventory (Oddi, 1984) - both are instruments which are very widely used in the Anglo-American world - contributed only to a certain degree to the clarification of the term 'self-directed learning' (Straka, 1996, 1996a, 1996b; Straka & Hinz, 1996).

In sum: In adult education self-directed learning is a central theme (Brockett & Hiemstra, 1991). However, it is mainly discussed in the 'tradition' of this discipline. Validated concepts of general learning and instructional theory are scarcely considered. Therefore we will first turn to the tradition of didactical thought in Germany and take as our example Franz Hubers (1972) 'General Instructional Theory' (Allgemeine Unterrichtstheorie) where we read amongst other things:

> "Learning is always the encounter with a learning subject; ... An *interaction* between the learning pupil and the subject to be grasped takes place: the pupil is interested in the subject, he directs himself towards it and absorbs himself in it; seen from the other side, the learning subject stimulates the pupil's interest ..." (Huber, 1972, 28, original italics).

This view does not contradict the learning-theoretical understanding of learning, according to which learning in general is the interaction of an individual with his socio-historical environment, with durable changes in the individual (Klauer, 1973; Hilgard & Bower, 1966). With reference to Knowles and Huber, self-directed learning may be described as follows: self-directed learning takes place when, assuming a learning need or rather a learning goal, the interaction between learner and subject may be characterized as *interest*, the learner applies *strategies* in order to acquaint himself with the content, *controls* the application of these strategies and subjects his achieved learning result to an *evaluation* (Nenniger et al., 1996; Straka et al., 1996).

Concepts and Constructs of Self-Directed Learning

By refering to theories and empirical evidences from related research fields, we shall try to define more precisely the concepts *interest*, *strategies*, *control* and *evaluation*. Interim findings are those constructs illustrated in figure 1 which - this being our assumptions - characterize motivated self-directed learning.

These will be defined even further with "dimensions" and operationalized with scales (Nenniger et al., 1996; Straka et al., 1996).

Let us first turn to the construct *acquisition* within the concept of strategies. The differentiation of and empirically validating this construct was and still remains one of the main focal points of learning research. With this, on the one hand, those activities through which information is condensed and organized (= structuring) are meant. On the other hand, the working out of differences and and similarities, the critical examination (Brookfield, 1989) of information (= elaboration) as well as the repeating with the aim of memorizing what has been learned (= rehearsal) also belong here (Danserau, 1978; Pintrich et al, 1991).

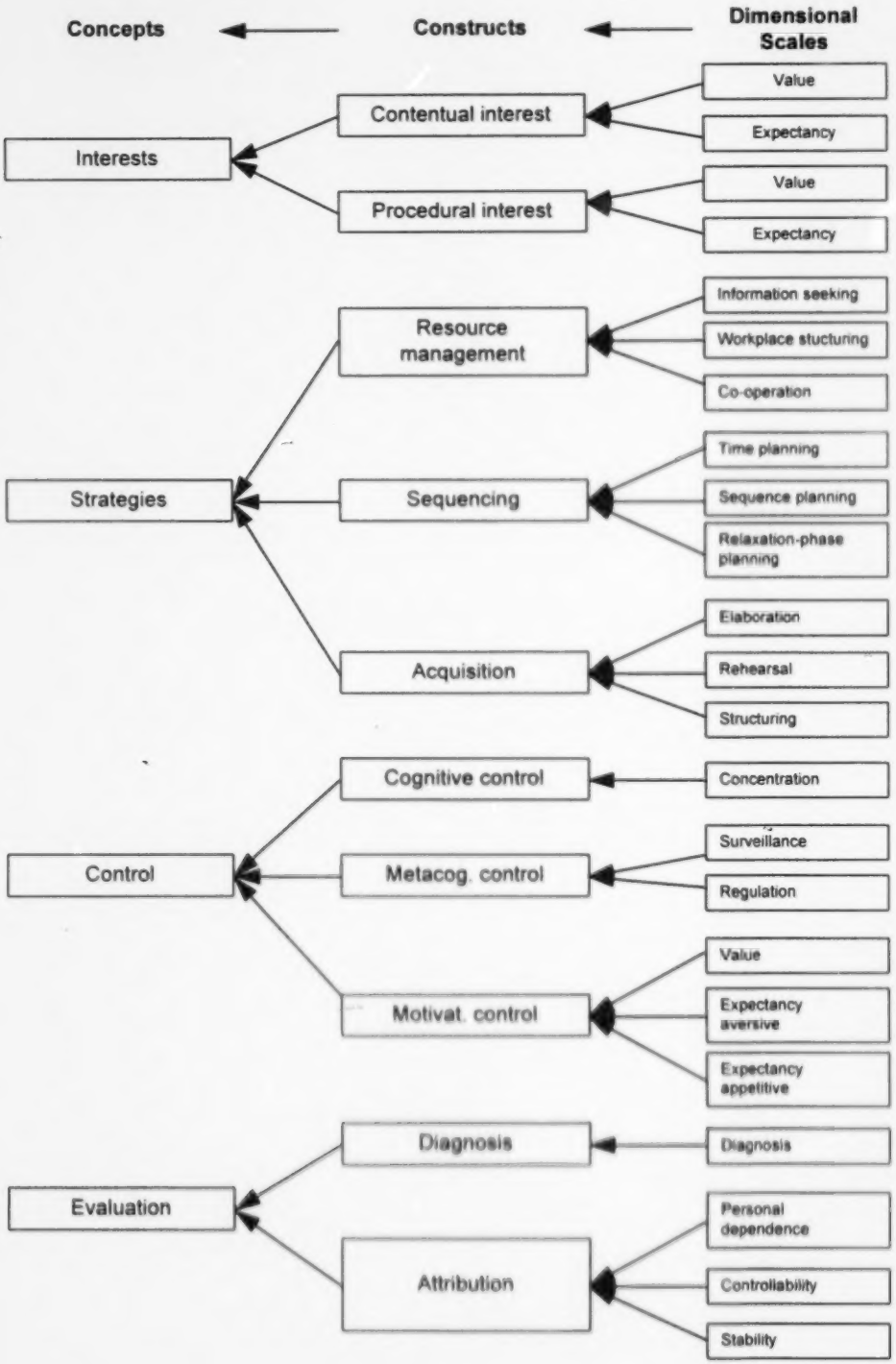
With self-directed learning, those activities which may be found before acquisition are given a higher status. They are associated to the constructs sequencing and resource management. Where resource management is concerned, activities may be differentiated into those which serve the seeking of information, the structuring of the place of work, or rather of learning, and the co-operation with colleagues as the social dimension of learning in the process of work (Weinstein et al, 1986). Planning one's time, learning steps and phases of relaxation is assigned to sequencing (Pintrich et al, 1991).

Acquisition, resource management and sequencing are subject to a *control* by the respective active person. This concept is differentiated according to cognitive (for example: when I am learning I do not allow myself to become distracted), meta-cognitive (for example: I sometimes interrupt my learning in order to consider what I have so far achieved) (cf. e.g. Brown, 1978, 1984) and motivational aspects (for example: it is important to me to achieve the learning goal) (McClelland, 1955).

The concept *evaluation* consists of the constructs diagnosis and attribution. Diagnosis refers to the concluding subjective assessment of the learning result as the difference between the consciously anticipated goal and the actually achieved learning result. Attribution involves establishing the reasons why the learning result was realized by the individual. According to attribution-theoretical considerations (Weiner, 1986), three dimensions are differentiated: the dimension "controllability" concerns the question whether acting and learning occurred inevitably or not. The dimension "person dependency" concerns the assessment whether a learning result was achieved through personal involvement or not. The dimension "stability" concerns the question whether the constellation of conditions under which a learning result was achieved remained constant or not.

The realization of the above mentioned activities presupposes that the learner has already prepared himself for learning, that he is so to speak "ready to go", a situation which Knowles refers to as initiative. With reference to traditions of didactical thought (i.e., Huber, 1972), it was attempted to express this situation with the concept *interest*. By reverting back to interest-theoretical (Deci & Flaste, 1995; Deci & Ryan, 1985; Krapp, 1992; Prenzel, 1986) and performance-thematic considerations and evidences (Heckhausen & Rheinberg, 1980), the difference is made between interest in the content and in the procedures (Nenniger et al., 1996).

Figure 1: Concepts, Constructs and Dimensions of Motivated Self-Directed Learning



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Interest in the content and the interest in the process were expressed on the basis of a value-x-expectancy model into which the value and expectancy components enter as independent dimensions (Atkinson, 1964):

Where interest in the content is concerned, the value components refer to the individual significance which is attached to an anticipated learning goal as regards contents; the expectancy component includes the assessment of realizing a meaningful relation with the contentual aspect of this anticipated learning goal (Tyler, 1971).

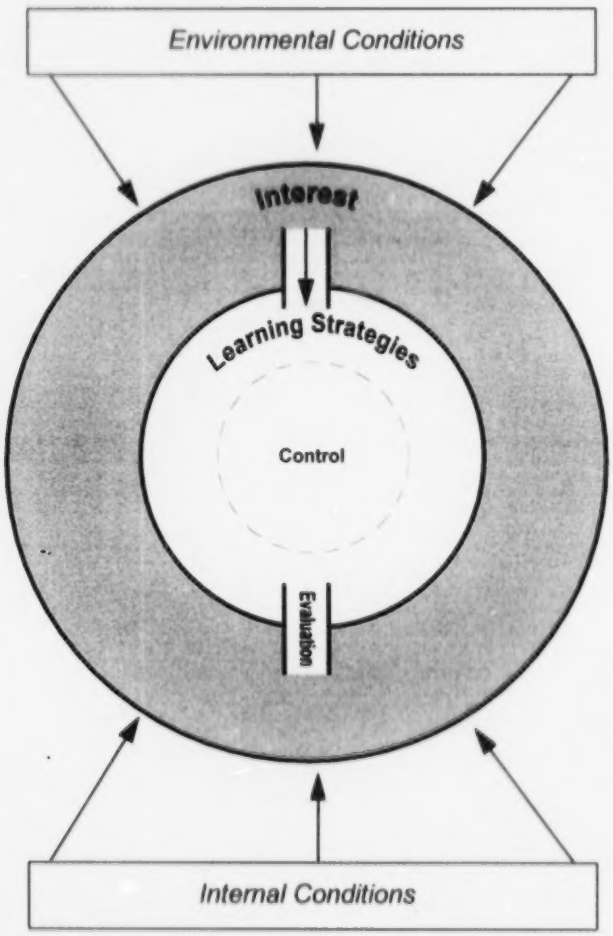
The interest in the process is expressed in analogy to interest in the content and refers in its value component to the personal significance which is attached to a particular way of behaviour for the realization of the intended learning goal, and the expectancy component expresses the individual's assessment of the realizability of this anticipated behaviour. Both the value and the expectancy components may be related to the resource management, the sequencing, the implementation, the methods of control and the evaluation.

The „Two-Shell Model of Motivated Self-Directed Learning"

If the concepts are structured, then we find ourselves with what we call the "Two-Shell Model of Motivated Self-Directed Learning". It differentiates socio-historical environmental conditions, internal conditions (for example, the developed declarative knowledge, values etc. already present at the time of learning) and activities which belong with the concepts interest, learning strategies, control and evaluation (see diagram 2).

On the basis of this model, self-directed learning is a process in which a person approaches a learning subject with an interest as regards the content as well as in the proceedings, applies strategies of resource management, of sequencing and of acquisition, controls their application cognitively, meta-cognitively and motivationally as well as evaluates by diagnosing and attributing the achieved learning result.

Figure 2: The Two-Shell-Model of Motivated Self-Directed Learning



Environmental Conditions

Learning in general and therefore also self-directed learning in the work-place and in life in general is related to socio-historical environmental conditions. In the work-place, this involves those jobs that with the most different forms of organization are all related to each other and which may be experienced differently by the employees. Linked to this is the question of which conditions at the place of work may be of significance for self-directed learning of the employees. Following the theoretical considerations of Deci and Ryan (Deci & Ryan, 1985; Deci & Flaste, 1995), the hypothesis is postulated that interest in self-directed learning is related to the individual experiencing of autonomy, competence and social integration.

The constructs experiencing autonomy, competence and social integration may be put into concrete terms for the conditions at the work-place as follows:

- *experiencing autonomy* at the place of work is when a person has the impression he has scope, that is to say that he is able to carry out his work tasks according to his own schedules.

- *experiencing competence* at the place of work is when a person has the impression he carries out his work tasks competently as well as successfully and when he feels himself to be effective.

- *experienced social integration* at the place of work is felt by a person when his tasks are acknowledged by superiors and colleagues and he feels integrated in the works community.

These three experienced work-place conditions are not only - this being our hypothesis - related to an interest in self-directed learning, but also - and this is our second hypothesis - to strategies and control.

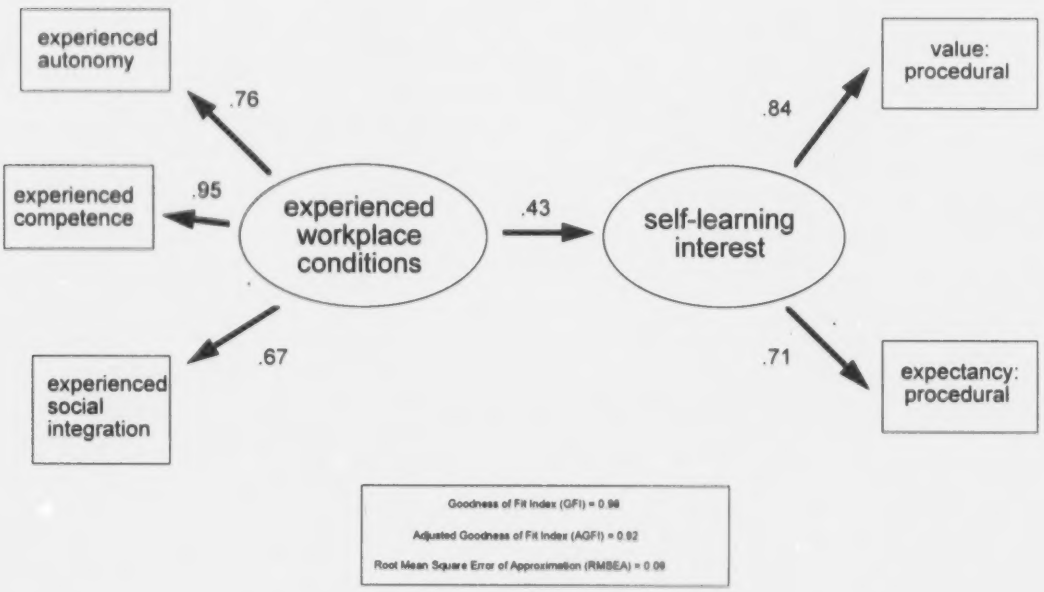
Empirical Evidences

Experienced Workplace Conditions and Interest in Self-Learning[1]

Within a survey investigating the potential of human resources, 194 employees in a North German general medical insurance company were asked about their experience of autonomy, competence and social integration at the place of work as well as their interest in self-learning. Of those questioned, 53% were female and 47% male. 64% below and 35% above 40 years of age whilst 68% had an average German secondary school education and 32% grammar-school education and above.

A structure analysis (Jöreskog & Sörbom, 1993), in the light of the first hypothesis, yielded the following result (see figure 3).

Figure 3: Structural relation between experienced workplace conditions and interest in self-learning



[1] Project funded by the German Research Foundation (STR 266/10-1)

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It may be gathered from the diagram that the variable "experienced work-place conditions" is made up of the variables "experienced autonomy, competence and social integration". The variable "interest in self-learning" is here defined by procedural interest. The coefficient between the "experienced work-place conditions" and the "interest in self-learning" is .43, which corresponds to an explained variance of almost 19% and means that the readiness for self-directed learning may be related to other conditions - in this case, to experienced work-place conditions.

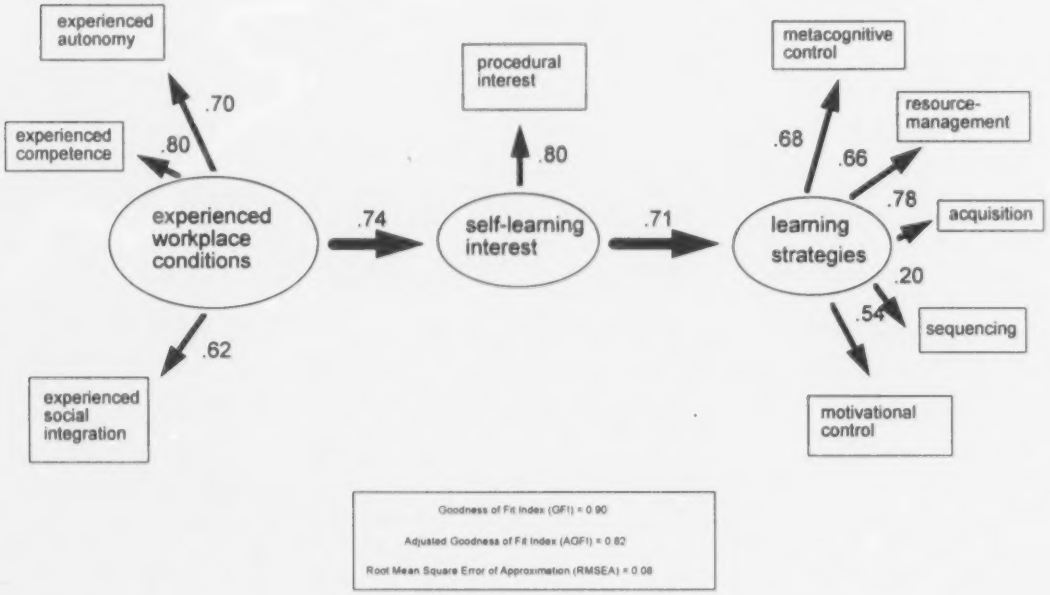
Experienced Workplace Conditions, Interest in Self-Learning and Learning Strategies

Within the phase of developing and validating instruments for the evaluation of the research and development project "Self-Directed Learning at the Work-Place" (SELA), which is currently being carried out with the Educational Centre of Companies in the Lower Weser Region (BWU) and the research group "Learning, Organized and Self-Directed" (LOS) the relation between experienced workplace conditions, interest in self-learning and learning strategies was analysed.

67 employees in the fish processing industry work with the survey instrument. 46% had an average German secondary school education and 54% a grammar-school education and above. 58% were female and 73% under 40 years of age. In order to test the hypothesis of a correlation between "experienced work-place conditions", "interest in self-learning" and "learning strategies", the structure model illustrated in diagram 4 was devised and examined with LISREL8 and, as an extension to the above illustrated analysis, the latent variable "learning

strategies" was formed out of the variables "meta-cognitive control", "resource management", "acquisition", "sequencing" and "motivational control".

Figure 4: Experienced workplace conditions, interest in self-learning and learning strategies



The results of the analysis show that this test does not contradict the hypotheses we had made above. A relatively strong correlation between "experienced work-place conditions" (.74; $R^2 = 54.7\%$) as well as between "interest in self-learning" and the "learning strategies" (.71; $R^2 = 50.4\%$) could be established.

Conclusion and Prospect

Self-directed learning may be viewed as a dynamic interplay between interests, motivations, strategies, control and evaluation (Straka et al., 1996; Nenniger et

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al., 1996). Furthermore, it appears to be related to experienced environmental conditions as the examination results illustrated above suggest. If this proves workable for adult self-directed learning and their workplace conditions as examined here in even greater and more representative examinations, then we can expect not only more differentiated results but also recommendations for a made-to-measure personnel and organizational development in the twenty-first century.

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